# Arizona Department of Education
# STEM Directory
http://www.azed.gov/standards-practices/stem-directory/

## TEACHERS & SCHOOL LEADERS

### *High Academic Standards for Students*
### K-12 Standards
Provides professional development, instructional resources, and information to support the development and implementation of Arizona's Standards in Mathematics and English Language Arts and Literacy in History, Social Studies, Science, and Technical Subjects, in addition to the K-12 academic standards in science, social studies, and educational technology. http://www.azed.gov/standards-practices/

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**Resources:**
Additional information and support for STEM teaching and learning, including standards, literacy in science and technical subjects, professional development opportunities, testing, and other updates can be located at http://www.azed.gov/standards-practices/academic-standards/science/
**Support:**
Providing teachers and school leaders with support in standards-driven instruction for interdisciplinary STEM teaching and learning across all content areas.

### *High Academic Standards for Students*
### Early Childhood Education
Supports all children of Arizona, birth through third grade, providing professional development and technical assistance for the Infant Toddler Guidelines (birth-2 years), AZ Early Learning Standards (3-5 years), and Program Guidelines for High Quality Early Education, Birth through Kindergarten. This unit is the Head Start State Collaboration Office as well as Early Childhood Special Education. We also work with Kindergarten through third grade, offering technical assistance and professional development. http://www.azed.gov/early-childhood/

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Early Childhood Education Program Specialist
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**Resources:**
Two Series at the Arizona Science Center: Technology in Early Childhood and Never Stop Wondering www.azscience.org/
STEMAZING/iSTEM4ECE through the Office of the Pima County Superintendent in Tucson, Arizona

ADE Early Childhood Education professional development trainings such as Science, Mathematics, & Approaches to Learning Standards Modules,  Creating a Science Rich Environment, Blocks in the Classroom, and Ramps and Pathways. http://www.azed.gov/early-childhood/

www.naeyc.org – Position statements on Technology and Interactive Media in EC Programs and EC Mathematics:  Promoting Good Beginnings

www.nsta.org – National Science Teachers Association Position Statement: EC Science Education

**Support:**
Our focus is on building understanding of what STEM/STEAM means for early childhood educators so they can articulate its presence in everyday practice as well as build a STEM pedagogical tool kit.  The end goal is to capitalize on young children's sense of wonder and expand their abilities to think and solve problems creatively through hands-on experiences.  We value the use of children's literature as a springboard for science, technology, engineering, art and mathematics activities.

## *Highly Effective Schools*
## Arts Education
A balanced, comprehensive, and sequential program of study in the Arts allows Arizona's students to learn and practice 21st-Century skills and behaviors that foster critical thinking, collaboration, communication, and creative problem solving. The Arts seamlessly integrate with other disciplines and subject areas to create engaging and rigorous learning opportunities for all students. Instruction in the Arts builds discipline, enhances self-esteem, inspires creativity, fosters linguistic, numeric, and aesthetic literacy, and encourages students to make and reach personal and academic goals.

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**Resources:**
http://www.azed.gov/art-education/ - Art Education
http://www.edutopia.org/article/STEAM-resources - Resources for STEAM - *Discover information, examples, and tools related to incorporating aspects of the arts, design, and the humanities into STEM-based school activities.*
http://www.nafme.org/stem-to-steam-resource-roundup/ - STEM to STEAM: Resource Roundup - *Whether you are looking for resources on integrating science, technology, engineering, and math or on infusing the arts to transform STEM into STEAM, this curated compilation will help you strategize around different approaches to integrated studies.*
http://stemtosteam.org/resources/ - STEAM resources and connections
http://steamedu.com/ - STEAM.edu - *Provides professional development for individuals and educational*

*programs to assist and support the transition to a STEAM platform/*
http://www.techlearning.com/blogentry/11054 - STEM, STEAM, Makers: Turning STEM to STEAM…24 Resources
**Support:**
The Arizona Department of Education Arts Education Department provides teachers and school leaders with support to prepare their students for life in the 21st Century. STEAM is an educational approach to learning that uses Science, Technology, Engineering, the Arts, and Mathematics as access points for guiding student inquiry, dialogue, and critical thinking. The end results are students who take thoughtful risks, engage in experiential learning, persist in problem-solving, embrace collaboration, and work through the creative process. These are the innovators, educators, leaders, and learners of the 21st century!

## *Highly Effective Schools*
## Career & Technical Education (CTE)
Prepares students to enter the workforce with the academic and vocational skills needed to compete successfully in the job market.  CTE courses typically include competency-based learning.
http://www.azed.gov/career-technical-education/

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**Resources:**
Professional Development for CTE - http://www.azed.gov/career-technical-education/professional-development/
CTE Administrator's Online Handbook - http://www.azed.gov/career-technical-education/cte-administrators-online-handbook/
ASSOCIATION FOR CAREER & TECHNICAL EDUCATION® - https://www.acteonline.org/
**Support:**
CTE programs offer students a deeper understanding of STEM career pathways in order to facilitate student transitions into these areas, build interest in STEM and STEM-related careers by making math and science content more relevant and tangible to students through integration, and help grow the STEM workforce pipeline. ADE's CTE unit actively encourages and supports the integration of active career exploration and career advising to help students understand the breadth of careers that have a relationship to STEM and the varied pathways that can lead to those careers.  Career and Technical Education in Arizona offers courses for students in areas like aviation and aerospace, information technology, engineering, health care, and robotics which expose students to curricula and careers they may have never even imagined.

## *Highly Effective Teachers and Leaders*
## Certification Unit
Provides guidance and support with the State Board of Education rules and regulations and state statutes governing the certification of professional educators in Arizona. Certification@azed.gov

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**Resources:**
Certification Homepage: http://www.azed.gov/educator-certification/
Certification Requirements: http://www.azed.gov/educator-certification/certificate-requirement/
Certification Forms: http://www.azed.gov/educator-certification/downloadable-certification-forms/
**Support:**
Helping individuals who are interested in teaching STEM subject(s) obtain an Arizona teaching certificate in a STEM area.

## BUSINESS & INDUSTRY

*Highly Effective Schools*

## Career & Technical Education (CTE)

Prepares students to enter the workforce with the academic and vocational skills needed to compete successfully in the job market.  CTE courses typically include competency-based learning.
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**Resources:**
http://www.azed.gov/career-technical-education/professional-development/
http://www.azed.gov/career-technical-education/cte-administrators-online-handbook/
https://www.acteonline.org/
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## FAMILY & COMMUNITY

*Highly Effect Schools/Exceptional Student Services*
## Family Engagement Initiative
Collaborations focus on high-impact strategies families, schools, and communities can utilize to support

student achievement. www.azed.gov/parents or www.azed.gov/parents/familyengagement

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**Resources (search STEM):**
Harvard Family Research Project www.hfrp.org
National Association for Family, School, Community Engagement (NAFSCE) http://nafsce.org
National Network of Partnership Schools, http://nnps.jhucsos.com
You for Youth https://y4y.ed.gov/teach/family
**Support:**
Family Engagement Specialist Family Engagement Initiative STEM resources to increase parental awareness www.azed.gov/parents
Family engagement resources to build general family, school, and community partnerships
www.azed.gov/parents/familyengagement

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they can articulate its presence in everyday practice as well as build a STEM pedagogical tool kit.  The end goal is to capitalize on young children's sense of wonder and expand their abilities to think and solve problems creatively through hands-on experiences.  We value the use of children's literature as a springboard for science, technology, engineering, art and mathematics activities.

## *Exceptional Student Services*
### 21st Century Community Learning Centers
Provides support to increase academic standards in out-of-school time programs for high poverty, low income schools.  21st Century Community Learning Centers supports programs and activities that incorporate inquiry-based instruction and higher-order thinking skills in an informal science setting.  We encourage student awareness of their future career potential and math talents.  Family engagement with STEM is promoted with specific activities.   http://www.azed.gov/century-learning-centers/stem/

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**Resources:**
The Arizona Center for Afterschool Excellence is dedicated to the enhancement of child and youth development and educational achievement through quality afterschool programming
http://azafterschool.org/stem/
You for Youth offers Online Professional Development and Technical Assistance http://y4y.ed.gov/
**Support:**
The 21st Century Community Learning Centers investigates and supports national, state and local STEM initiatives and programs.  These efforts included designing and monitoring a long-term STEM pilot program including informal STEM instructor training, inquiry-based instruction and family engagement.

## *Highly Effective Schools*
### Title I
Focuses on activities that are supported by funding Targeted Assisted and School-wide Title I programs.  Also School-wide Reform Models, STEM enrichment programs which target low performing students and professional development (PD) aimed at increasing student participation in Advanced Placement coursework. http://www.azed.gov/no-child-left-behind/title-i/

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**Resources:**
http://www.azed.gov/century-learning-centers/stem/

http://www.azed.gov/century-learning-centers/
http://www.azed.gov/art-education/

**Support:**

STEM programs supported by Title I may include after school, weekend, and summer enrichment programs. These programs must target students who are at risk in failing.

## *Health and Nutrition Services*

## School Food Programs

Provides professional development for the child nutrition programs so children learn how to eat and play healthy; Farm to School, Farm to Chef, Fresh Fruit and Vegetable Program, and Chef in the Classroom http://www.azed.gov/health-nutrition/

**Resources:**

http://www.azed.gov/health-nutrition/schoolfoodprograms/
http://www.azed.gov/health-nutrition/school-health-programs/

**Support:**

School Food Programs
School Nutrition Programs
School Health Programs
Nutrition Services
Health Education
Farm to School
Farm to Chef